

CATS



NEWSLETTER

The Official Journal of the Capital Area Timex/Sinclair Users Group

Presidential Ramblings

Eighteen "regulars" showed up for the August meeting - most came early, per usual. Why don't YOU come early to either read Newsletters from other User Groups, participate in whatever Duane has planned special for that day, or just to kibitz with the others who are always sharing their Sinclair expertise with those experiencing difficulties with either hardware or software. I personally think you miss an important part of the CATS organization by coming only for the General Meeting.

Interest is high in the picnic scheduled at the Diggs' place September 15th. Despite the distance, the extensive facilities offered for our use should entice your whole family to join you. So pack up your family, food and drink, folding chairs and a card table if you are averse to sitting on the ground and make the trek. (And tuck in a large plastic trash bag so we won't leave clean-up responsibility as a problem for our hosts.) The Swap-Shop should be an additional incentive. There's always something that you can't do without to replace what you've brought in hopes of reducing some of your clutter!

I'm giving you warning that I'll soon be asking for a few volunteers to work on a few needed changes in our Constitution - reducing our figure of 20 for a Quorum being one. Another is the unusual stipulation of a Nominating Committee being appointed by the

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From The Editor:

The first thing that you should notice (at least I hope you do) is that 5 out of 13 articles have been written by myself. That's a lot of articles from one person. It also means that some of you out there are not helping out. The fewer articles that I receive from members, the more I must write to fill the space. I hope a few of you out there will help me out!?

I hope most of you will make it to the CATS Picnic this year. Yes, it's a longer drive, but the facilities are outstanding (or so they tell me). We told you last month when it was going to happen. We hope you reserved that day then. I know I did!

The one thing that's helping me make the long drive is the Swap Shop. The idea of buying some more computer stuff to fill my closet is hard to resist.

On that note, the day after the next meeting is the Gaithersburg Ham Fest. A Ham Fest is a treasure trove of old, useless, but much needed, computer equipment. Some of the prices are hard to believe. Some people are just giving the stuff away (Hey, it's true. I got a PDP-11/05 that way). If anyone in the Alexandria area wants a ride, I can take a few people along. The amount of people that I can take depends on how much stuff hope to bring back. (Hmmm, I

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Key Dates

- 8 September: CATS Meeting
 11:00 Workshop
 1:00 Executive Board Meeting
 2:00 General Meeting
- 9 September: Gaithersburg Ham Fest
- 15 September: CATS Picnic
- 25 September: Newsletter Deadline
 For the Next Issue

From Page 1

President. Won't a few of you PLEASE VOLUNTEER? I'll lend my New Robert's Rules if you do.

The recent arrival of Benjamin Boston was announced by proud father, Christopher. Congrats to him and, of course, to Gina.

Looking over the CATS Roster reveals several new names - due no doubt to the efforts of Audrey Curnutt who has been adept at recruiting folk from across this land. Welcome Aboard Doug Gillespie of OH, William McGrath of CA, Dennis Nickel of WI, Richard Wasser of CT, and Stuart Walton of MA. It was great to once again see Joan Kealy of TX among our supporters! If you want a copy of our Roster send us an SASE.

'Nuff for now,

Ruth

Meeting Subject

There are two subjects for the September General Meeting.

Tom Robbins will be discussing the topics of the meetings for the next year. If you have a subject that you would like to talk about, this will be your chance to get on the list. If you would like a discussion on a subject, speak up. Maybe someone will volunteer to speak on that subject.

Tim Swenson will be discussing Structured SuperBasic introduced in this month's newsletter. So read the article and come with all your questions and comments. Tim will expand on the matter covered in the article.

Student Science Project Pushes Floppies to the very Max

"Safeguarding Data on Floppy Diskettes"

By Kelly Fuksa
Longfellow Intermediate School
Falls Church, Virginia

The purpose of my science project was to determine the effects of adverse environmental and human factors on the integrity of the data stored on 5.25" floppy diskettes. I tested diskettes in a variety of ways, subjecting them to extreme temperatures, magnetism, airport security devices and microwaves. Additionally, I tested the diskettes by spilling liquids on them, touching the exposed magnetic media, and by writing on the diskette labels.

Extreme Temperatures

Subjecting disks to extreme cold (30°F and 0°F) had no effect on the floppy diskettes or the data stored on them. Extreme high heat (200°F and 300°F), however, did damage the diskettes. The jackets were so warped they would not fit into a disk drive. At 200°F, the jacket could be carefully slit down the side and the media inside could be switched to a new jacket. Surprisingly, the data on the magnetic media survived 200°F!

Touching the Magnetic Media

Casually touching the exposed magnetic media on the read/write slot did not damage the data stored on the floppy diskettes. Prolonged touching or constant rubbing, however, did erase a good portion of the data. In addition, reformatting was impossible, and the diskette had to be thrown away.

Writing on the Diskette Label

Using varying pressures (normal, extremely hard, and really hard as possible), I wrote with a ballpoint pen on the labels of diskettes. In

each case, my testing indicated the jacket had not been punctured, and the data was not damaged no matter how hard I pressed with the pen.

Spilled Liquids

When water was spilled on the diskettes and wiped up immediately, there was no harm done to the data. When the water was left to dry on the diskette, however, the computer could not read many of the data files. Coffee spilled on diskettes, whether wiped up or left to dry, caused severe problems. Although all files still appeared to exist, most were damaged by the coffee.

Magnetism

Magnets in a stereo speaker and a telephone receiver did not harm the data stored on diskettes. However, a small refrigerator magnet damaged the data, but only when placed a centimeter away from the diskette. A degausser erased everything on the disk. (A degausser is a large electrical device specifically used to destroy data stored on floppies or any other magnetic computer medium.) Even after being subjected to magnetism, all disks were still reformattable.

Airport X-Ray Machines/Microwaves

Both the airport metal detector and the x-ray machine had no effect on the data stored on the disks. The data also came out unharmed after a diskette was heated in a microwave oven for two minutes!

Conclusions

As a result of my testing, I discovered that floppy diskettes are extremely durable and that the data on them is quite secure. In many of the tests I conducted, the disks came out unharmed. Certain things can damage them, but most of the severe problems can be avoided by taking care and using common sense.

Structured SuperBasic

By Tim Swenson

Structured SuperBasic (SSB) is my attempt solve a problem that has plagued me. After programming in C and Pascal for a while I found that SuperBasic listings were not as easy to read as I would like. There was no white space between blocks of code to separate them. The line numbers clouded things up. I know there had to be a better way. I had seen how the new MS-DOS Basics looked and liked the use of no line numbers.

Not being in the mood to write a SuperBasic compiler of my own, I had to come up with a better idea. I conceived a program that would "translate" SSB programs into a form that SuperBasic could handle. Well, here it is. This is just the bare bones program. I plan to work on it some more, add bells and whistles, etc. I do plan to write up some better documentation and compile the program for speed. Let me know what you think and tell me about any changes you would like.

The Structured SuperBasic Converter program takes a program written in SSB form and converts it into a SuperBasic program with all the line numbers. Since line numbers are not used in SSB, labels are used for GOTO and GOSUB statements.

The best way to really describe SSB is to show you a SSB program.

Sample Structured SuperBasic Program

```
x = 1
@loop
  print x
  if x > 30 then
    print "End"
    print "of"
    print "Program"
    stop
  end if
```

goto @loop

End of Program

Yes, this is a do nothing program, but it shows you how SSB looks. A ## is used to mark a comment line. This line is converted to a REMark line in SuperBasic. The @ sign is used to distinguish a label. The @ sign must be in the 1st character position to mark the label. The label will mark the next line as the place to GOTO.

The greatest feature is the use of white space to break up the code into readable blocks. This allows the code to be easier to read.

When you use the converter program, you supply it with the input file (your SSB program) and the output file (your SuperBasic program). The output file must not exist. The converter will run through the program in two passes. When it is done, the output file is ready to be loaded and run in SuperBasic.

The convertor program does not check your syntax of your program. If you do have a syntax error, you will see the keyword MISTake in your program when you load it.

The converter does have some limitations. You must not use an @ sign or ## in your program. The labels must be in the same case. @loop is not the same as @LOOP. You must have at least one space before each line (except labels).

Even with these limitatins, SSB can be usefull. Read over the program to see how it works.

If you have any questions, please give me a call (I'm listed on the back of the Newsletter).

```

SSB_BAS
100 CLS
110 REMark Init Variables
120 DIM label$(30,10)
130 DIM label(30)
140 label_var = 1
150 line_num = 100
160 INPUT "Enter input file:
";in_file$
170 INPUT "Enter output file:
";out_file$
180 PRINT "PASS 1"
190 OPEN_IN #4,in_file$
200 REPEAT pass_1
210 INPUT #4,in$
220 IF EOF(#4) THEN EXIT pass_1
230 IF LEN(in$)=0 THEN END REPEAT
pass_1
240 IF in$(1)="@" THEN
250 label$(label_var) = in$
260 label(label_var) =
line_num
270 label_var = label_var + 1
280 ELSE
290 line_num = line_num + 10
300 END IF
310 END REPEAT pass_1
320 CLOSE #4
330 PRINT "PASS 2"
340 LET line_num = 100
350 OPEN_IN #4,in_file$
360 OPEN_NEW #5,out_file$
370 REPEAT pass_2
380 INPUT #4,in$
390 IF EOF(#4) THEN EXIT pass_2
400 IF (LEN(in$)=0) OR
(in$(1)="@") THEN END REPEAT
pass_2
410 REMark remarks
420 LET temp = "###" INSTR in$
430 IF temp<>0 THEN
440 PRINT #5,line_num;" remark
";in$(1 TO temp-1);in$(temp+2
TO )
450 ELSE
460 REMark Labels
470 LET temp = "@" INSTR in$
480 IF temp<>0 THEN
490 a$ = in$(temp TO )
500 temp2 = 0
510 temp2 = temp2 + 1
520 IF label$(temp2) <> a$
THEN GO TO 510
530 PRINT #5,line_num;in$(1
TO temp-1);label(temp2)
540 ELSE

```

```

550 PRINT #5,line_num;in$
560 END IF
570 END IF
580 LET line_num = line_num + 10
590 END REPEAT pass_2
600 CLOSE #4
610 CLOSE #5
620 PRINT "Program Done"

```

CATS Workshop

By Duane Parker

Our 11 AM sessions have now become simply "Workshop" sessions. Anyone interested in doing some hands-on projects is invited to bring their ideas and hardware and software. We will begin at 11:15 A. M. I have the following projects started.

1. Development of a cataloging system with the use of SuperBasic and Archive on the QL. My first trial at generating a database for Archive with SuperBasic was distributed at last meeting. Come with your ideas and programs.

2. A hardware project was suggested to make the QL auto-booting with an attachment on the CTL2 port, but this has not progressed beyond the idea stage. Tom Robbins - bring the pin-out for the CTL ports! All we need is a method to electronically connect the pin representing the F1 key (or F2, if you use a TV) when the QL is plugged in and then interrupting this connection after the QL sets up its BIOS. Bring your ideas, D-plug, chips, boards, or whatever you think may work.

3. In the last "UPDATE" John Juergens described some things that can be done on the QL without the use of TOOLKIT 2. Let's bring our QL's and cables and try this out!

Keep your ideas coming! Set-up early so we can have fun with these projects.

SuperBasic Recursion

By Tim Swenson

Recursion is the use of a program that calls itself. Jokingly one could say that the dictionary definition of recursion is; Recursion see Recursion.

Recursion is one programming practice that has normally not been available to BASIC. Since SuperBasic is known for going beyond normal BASIC, it does support recursion.

Recursion is used to break up a problem into smaller chunks and write a procedure that will handle any of the chunks. The best way to describe recursion is to show you how it works. Below is a program that will recursively split a string in half. The program will print out the string as it works on it. Also look at Figure 1. You will notice that the program seems to cover the tree using a left hand rule.

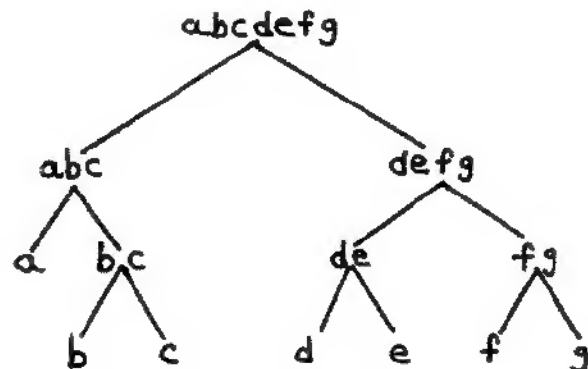
Recursion is one of the best ways to handle tree structures. Trees are one of the major structures discussed in most Data Structure classes.

The idea I'm trying to convey is that a procedure can call itself before it has reached the end of the procedure. When a procedure calls itself, it takes a "picture" of the current variables and pushes them on a stack. It then takes the new values passed it and executes using them. If it calls itself again, it pushes again. When a return statement is encountered, the procedure pops the last values off the stack and continues where it left off.

You may not find recursion usefull in your programming, but if you are translating from a language that supports it, it makes it easier to translate to SuperBasic.

```
10 DEFine PROCedure split(in$)
```

```
20 LOCAL temp
30 PRINT in$
40 IF LEN(in$)=1 THEN RETURN
50 temp=INT(LEN(in$)/2)
60 split in$(1 TO temp)
70 split in$(temp+1 TO
LEN(in$))
80 END DEFine split
80 END DEFine split
```



Membership Update

Here is a list of members that have joined/renewed and did not make it in the last membership roster. Please add them in.

Laurie Futrell
4082 Brownlee Dr.
Tucker, GA 30084

Doug Gillespie
5860 Calamie Drive
Parma Heights, OH 44130

Joan Kealy
P.O. Box 1118
Brackettville, TX 78832

William Clarence McGrath
P.O. Box 3290
San Ysidro, CA 92073

Dennis J. Nickel
3316 North Highway D
Saukville, WI 53080

Stuart W. Walton
31 Pleasant St.
Rowley, MA 01969

Richard Wasser
7 Duck Road
Norwalk, CT 06854

GIF on the QL

By Tim Swenson

In my recent readings on Usenet, I noticed that there were a large number of graphic files being posted. These files are in a format called GIF (Graphics Interchange Format). GIF is a standard way of putting pixel based computer graphics into a text file format for transfer between computers. It was developed by CompuServe and now used as a standard.

I remembered that a few years ago Norm Lefeldt, of the Penninsula Users Group (S.F. CA), had reported Don Thompson as working on a GIF converter for the QL. So I called Norm and had him send me the program. Days later a disk came in the mail with two programs and a number of GIF files.

One program, SHOWGIF_BIN, displays GIF files on the QL screen. This is the program that I needed. The second program, CONV2GIF_BIN, converts QL graphic pictures to GIF files. I have yet to try this program out.

The display program works great. It takes in any GIF file and tries to display it on the QL. I say try because of problems with the GIF definition and the QL. The QL is only capable of 8 colors while GIF is defined to represent up to 16,777,216 colors. A good percentage of GIF pictures have a large number of different colors in them. This is all nice if you have an Amiga or an ST, but not so great if you have a QL.

These "many" color GIF pictures come out looking like some modernistic art work. The program allows you to make some changes on how the program displays the pictures. With some pictures you can "tweak" the program to get a better result. On some pictures, it is just hopeless.

Of the GIF files Norm included about half of them can be displayed well on the QL. One even looks great. I have downloaded a few GIF files off of Usenet. After displaying one, I still have no idea what it is supposed to look like. The others have sent the computer to never-never land. I have no idea why the program crashed.

Some of the GIF files with a low number of colors should translate well to the QL. It's the multi-color wonders from Amiga's and ST's that will not work.

I am submitting all of the files I recieved to the QL Library, this includes a DOC file describing the use of the programs and a more detailed explination of GIF.

CATS Picnic

By Hank Dickson

The CATS family picnic will be held from noon to 4 p.m. Saturday, September 15, 1990 at the home of Bob and Betty Diggs.

Their address is 89 Riverside, North East, Maryland.

A map describing exactly how to find the Diggs' residence appears elsewhere in this newsletter.

CATS will provide a portable grill and charcoal. Everything else is to be supplied by those attending. Folding chairs are highly recommended.

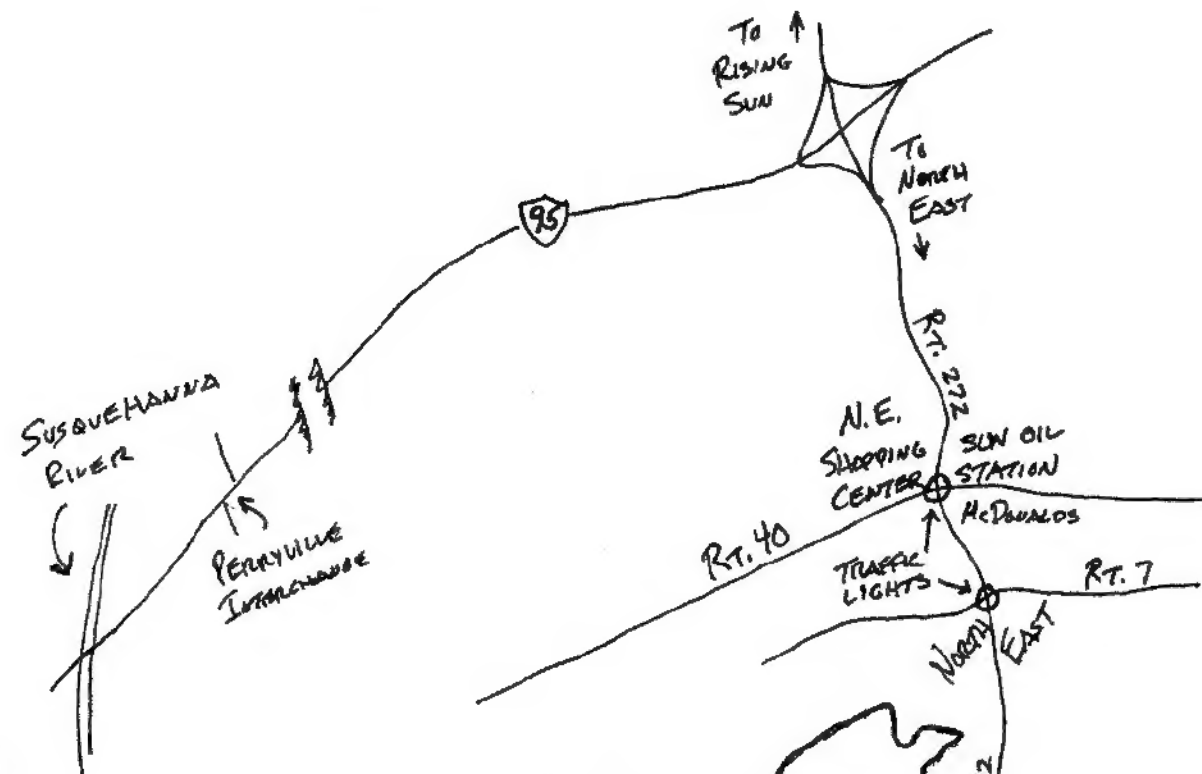
Bob Diggs says that water sports will be available, as well as softball, volleyball, and badminton. There are community tennis courts nearby, as well as a beach-front golf course.

There will be a place for changing in and out of swimming gear.

In case of uncertain weather, it is suggested that Bob Diggs be given a call at 301-287-6098.

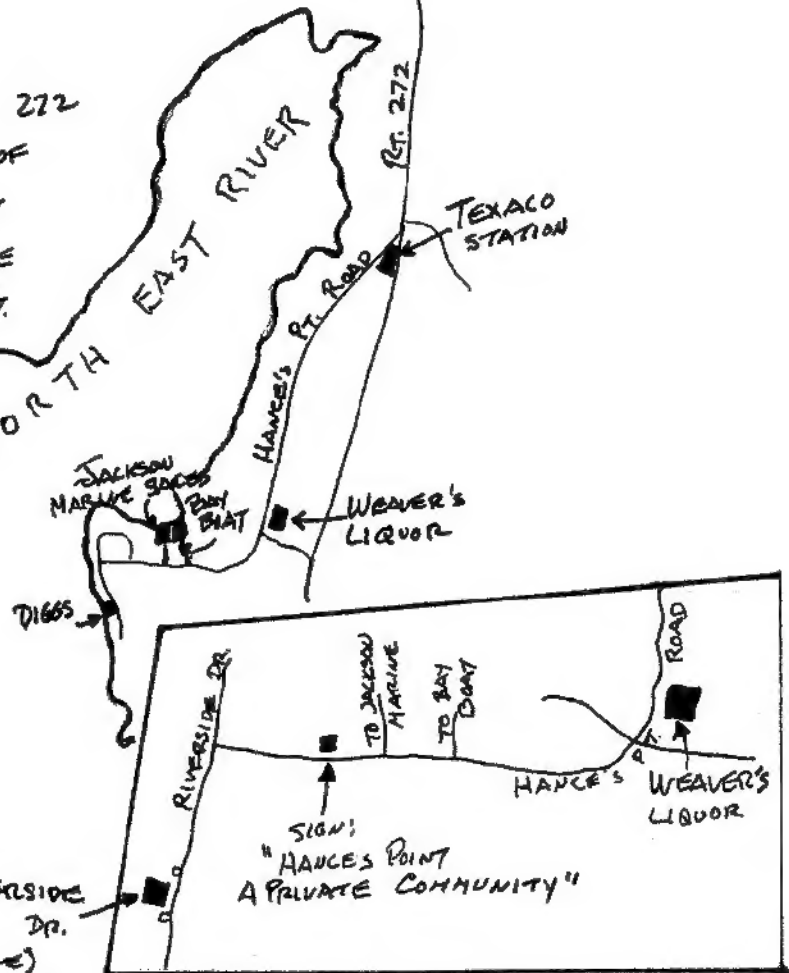
A rain date of September 22 has been established.

How to Find Your Way to the CATS Picnic...



DIRECTIONS: Go SOUTH on Rt. 272
ACROSS Rt. 40 THROUGH TOWN OF
NORTH EAST. BEAR RIGHT AT
HANCES PT. RD. (JUST BEFORE
TEXACO STATION). HANCES PT.
RD. FORKS AT WEAVER'S
LIQUOR. TAKE RIGHT FORK
STRAIGHT AHEAD THROUGH
THE WOODS. FOLLOW TO
DEAD END. TURN LEFT
AND GO 10 or 11 COTTAGES
TO GREEN COTTAGE WITH
"DIGGS" ON MAILBOX.
(PHONE: 301-287-6098.)

89 RIVERSIDE
DR.
(GREEN COTTAGE)



Reading and Writing Other

Disk Formats

By Tim Swenson

Various people in other Groups have made, sometimes successfull, attempts to read and write different disk formats with Sinclair computers. This provides an easy way to exchange files between different type systems. I use a program that converts QL files to MS-DOS disks. I then transfer them from my PC (at work) to my Sun minicomputer, and then to the laser printer.

Here is a quick survey of what systems can do:

QL:

Read - T/S 1000, T/S 2068,
MS-DOS, CP/M, CoCo.

Write - MS-DOS, CP/M, T/S
1000?, T/S 2068?

T/S 2068:

Read - MS-DOS, T/S 1000?, QL?
Write - MS-DOS?

T/S 1000:

Read - MS-DOS?
Write - MS-DOS?

The reason for the question marks, is that these formats should be possible, but I'm not too sure if someone has done it.

The general idea behind reading various disk formats is simple. Since we can use the same disk drives on diferent computers, it's obvious that the drives use the same method the store the bytes to the disk. How the bytes are arranged on the disk is up to the operating system on the computer. The hard part is knowing how different computers arrange their files.

Some computers use a simple algorithm to store files, while others use more complex algorithms. The destination computer must know the algorithm that the computer uses to store it's files.

If you don't know the method, you can still read the disk by reading each sector of the disk. You would do this using a file or disk editor. Now that you can read each sector, like a jigsaw puzzle, you have to figure how to put the sectors back together to form the original files.

If the disk is new, the files will be in order. At the end of the first file, will be the start of the second file. It's when the disk has been used a lot that the files get fragmented and spread around the disk.

One person that has been attempting to read and write various formats is Bill Miller of the Silicon Valley group. He and Mark Wahl have written a program that should read an MS-DOS disk (at least the directory). I've got the program running around somewhere, see me if you would like a copy.

In the May-June 90 issue of Sinc-Link (Toronto group) George Chambers describes his experience transferring files from MS-DOS to the T/S 2068. Included in a program to do this. See our club newsletter library for this issue.

Now that I have peaked your interest, I hope some of you will try this yourselves and report back to us on your sucesses or failures.

ToolKit II Demo

By Bob Curnutt

At the August CATS meeting Tom Robbins demonstrated some of the features of the "utility" program, TOOLKIT II. Most Q.L. users know that it comes with the TRUMP CARD, but many may not realize that it can be used with the UNexpanded Q.L., and in fact is available on microdrive for about \$20.

The EPROM version only costs about \$30, and is a much better buy this way, except it is not as "portable" as on disk or tape.

A few of the more valuable features were shown:

Allows "paths" as in MS-DOS: one short command can invoke a series of keystrokes to make file handling much simpler.

Even very long directories can be scanned up as well as down, using "DDown", etc.

Most of the added features are for SUPERBASIC, like the FULL SCREEN "Editor", which has to be seen and used to be appreciated!

If you mostly use the four PISON programs which came with the Q.L., TKII won't be much help--they can't access any of its features.

TKII can put a small digital clock on the screen, with alarms, if wanted! For those who've ever wanted to use the PRINT USING format function available in other basics, TKII adds this too.

The ALternate KEY function allows the user to define special functions or procedures which can be called with 2 keystrokes!

Error trapping is a very tricky thing in most Basics, and TKII adds more flexibility to the few that come with SUPERBASIC.

The most entertaining feature demonstrated was the "expanding" of the display window(s); 132 characters by 50 lines could be easily read on the (Skip Fisher) RGB and the green monitor, but was almost unreadable on the color TV, even with a much larger screen!

The last 22 pages of the tiny Trump Card manual deal with using TKII; around 60 functions were added with TKI, and another 30 were put in for the latest version.

The worst feature of the manual is its size; it is also very terse, being so digested down, as if to fit inside a cassette case or something!

"LASER" COMPACT XT

Tom (Robbins, that is) also had a very surprizing display item: a "Q.L." size and weight computer for PC "clone" fans at a Q.L. price: \$140, more or less! This is complete with MS-Dos 3+ and BASICA, 512K RAM(!), a single disk drive in the right side, RGB and composite video outputs, joystick port, serial port, (maybe a parallel one too). No expansion slots...too

small, anyway. A similar type box by this same company, which clones the Apple system, sells for between 300 and 400 dollars!

Tom bought it from SHARP'S in Mechanicsville, VA...I forgot to ask how he found out about it.

Sharp's is closed this week (until Aug. 20), or I could report a lot more!

From Page 1

wonder if too many computers is grounds for divorce?)

At the next meeting you will get the pleasure of seeing me discuss the Structured SuperBasic program mentioned in this issue. I'll discuss the hows and whys of the program, plus take any comments from the group (I do hope you have some).

Last spring a seventh grade student in Fairfax County, **Miss Kelly Fuksa**, devised a science fair project in which she did all kinds of stressful things to floppy disks, then carefully documented the results. Her project won first grand prize at the Longfellow Intermediate school science fair in Falls Church, VA, and later earned second place in the regional (Fairfax County) science fair. In this issue we are printing an article by **Kelly** which summarizes her findings. Those of us who regularly cope with the floppy disk medium either at work or in our leisure time should find her project interesting, informative, useful, or probably all of the above.

So I'll see you at the next meeting. Happing Hacking.

Swap Shop

By David Bennett

There is an added incentive for attending the CATS picnic and driving a little farther. We will have a 'Swap-Shop' to sell, buy, and swap items. It should be just like the large Computer Festivals only on a slightly smaller scale.

So bring anything that you want to sell or exchange. QL items would be good since most of the group is into the QL. 2068 items will be sought after.

There will be plastic sheets spread out on the ground to put your items on. There will be no electricity to try anything out. Mark each item with your name and price. You can also swap one item for another on the barter system.

The Swap-Shop should start as soon as all the people and items are present. You can continue swapping while the other events are going on.

About 3:00 or so we will have an auction of the remaining items. You can donate your unsold items to CATS for auctioning. Or your item can be auctioned for you with the understanding that 10% of the sale price will be donated to CATS. Later on if there still are some remaining items the donation to CATS will be only \$4.00. The auction is strictly voluntary. You can take your unsold items back home with you if you want.

Who knows, you may be able to find just what you have been looking for and the price was too high elsewhere.

The News is Out!

And We're Spreading It!

RMG is adding so many NEW and EXCITING TIMES to our line that our storerooms are BULGING! We have added more than 25 NEW PAGES and changed over 20 others in our BIG 40+ page catalog. We want to make sure that you do not miss our on anything we may be able to help you with in your computing.

If you will send us \$3.00 you will receive our catalog with a \$3 off coupon for your first order. AND, send along 12 business size SASE's and you will receive 12 monthly updates and special mailings. \$5 discount coupon in first mailing!

RMG ENTERPRISES

1419 1/2 7th Street
Oregon City, Oregon 97045
(503) 65-7484 * Noon-10 Tue-Sat

CATS maintains a gratis exchange of newsletters with approximately 30 Users Groups across the U.S. and Canada. Groups not sending a newsletter to us for six months are automatically taken off the list.

Executive Board
 President Ruth Fegley
 1st Vice President Hank Dickson
 2nd Vice President Tom Robbins
 Recording Secretary Audrey Currant
 Corresponding Secretary Joe Miller
 Treasurer Barry Washington
 Members-at-Large Duane Parker
 Akin Olowofoyeku Cliff Watson
 Immediate Past President Bill Barnhart
 Newsletter Editor & Tim Swenson
 contact person (703) 820-6657

The Capital Area Timex/Sinclair Users Group is a not-for-profit group devoted to serving the interests of those who own, use, or are interested in the Timex/Sinclair family of computers.

Executive Board

CATS BBS: (301) 588-0579. 8-N-1. 300/1200 baud. News and general information, 24 hours a day.
 18, node 9.

QZX BBS: (505) 522-7081 FIDO net 15, node 6. East Coast dial (703) 547-4815 FIDO net night, 10:00 PM Eastern time (GO CLUB).
 Timex SIG on CompuServe: Wednesday

Networks

Memberships cost \$15 per year, are good for 12 months, and include all privileges (access to libraries, group buys, etc.). A newsletter only subscription is available for persons living outside the Washington Metro area and is \$12 per year.

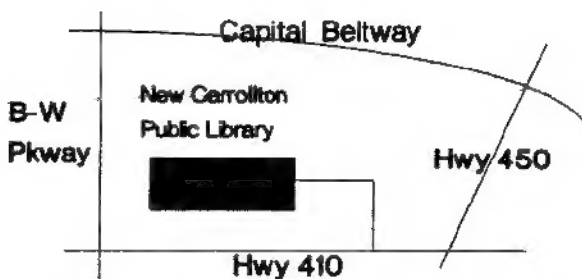
Newsletters

Monthly meetings are held from 11:00 AM to 4:30 PM, on the second Saturday of each month, at the New Carrollton Public Library.

Meetings

CATS Newsletter
 P.O. Box 11017
 Takoma Park, MD 20913

FIRST CLASS MAIL



The next meeting of CATS will be held on: September 8, 1990

11:00 AM Hardware Workshop
 2:00 PM General Meeting

At: New Carrollton Public Library 7414 Riverdale Road (Hwy 410), New Carrollton, MD

IF YOU ARE NOT A MEMBER OF CATS. THIS IS THE ONLY ISSUE YOU WILL RECEIVE